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Achieving Food Security in Mali: Key Issues and Investment Needs
by

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1. Introduction

A key role for USAID and its partners is to identify how their resources can best contribute to increasing the capacity of the private and public sectors in Mali to scale up their investments, and increase the impact of those investments, in relation to the food security dimensions of availability, access, utilization and stability. To fulfill this role will involve identifying opportunities presented in the Malian agricultural sector investment plan (PNISA) to address critical needs in each of these dimensions, the types of investment that will best address the needs, and the set of resources and skills that will enable Malian organizations and entrepreneurs to implement those investments successfully and at scale. Even with increased resources, however, it is critically important that the USAID mission make strategic choices about where to focus resources. The scale and depth of rural poverty, and the complex nature of malnutrition, means that resources must be focused to have measureable impacts. The question is for whom, where and how should those resources be focused in the context of Mali's CAADP compact and investment plan? To stimulate discussion of these questions we first highlight some key challenges and the nature of choices about resource allocation priorities, and then highlight the central role of information to achieve food and nutrition security objectives. We conclude with thoughts on two specific issues: graduating from fertilizer subsidies to free up resources for other investments, and the implications of smallholder heterogeneity for development strategies.

2. Challenges and Priorities

Decisions about how USAID can best utilize its resources in support of Mali's CAADP investment plan involve choices about sectoral, geographical and thematic priorities. To what extent should USAID support Mali's CAADP through a thematic approach (e.g., strengthening research and extension services), or through a subsectoral approach (financing investments in particular subsectors such as fish or dairy), or through a geographical (production systems) approach? Or should it be purposive combinations of subsectors, production systems and themes that provide most leverage on food security and nutrition outcomes in the short and long run?

Consistent with the aspirations of the Loi d'Orientation Agricole for Mali to become a regional grain basket, the primary focus of government efforts to date has been on increased food availability (production) and price stability (storage and trade policy), with relatively less fully developed investments that target the access and utilization dimensions of food

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security. This is understandable given the political imperative of feeding a large, poor, urban population. Indeed, the vulnerability of large numbers of urban poor to food availability and food price shocks, and the social instability that can result if such shocks are not avoided, make food security an issue of national security. It is therefore a political reality that in the near term Mali's investment program will need to increase productivity in both production and marketing systems to reduce the real cost of food to the urban population. Identifying efficient ways to do this is important to be able to balance resource allocations with the need to improve utilization. This has important implications for choices about whether to promote additional food production in commercially oriented systems in irrigated or high potential areas versus less productive areas? We return to this question in section 4.2 below.

A key factor in managing urban food security over the medium and long term is to slow down the rate of exodus from rural to urban areas. According to the RuralStruc study (2010), an additional 1.5 million people will join the rural labor force between now and 2020. They can be accommodated neither in overcrowded cities nor in subsistence agriculture, but instead will need to find gainful employment in off-farm service sectors (e.g., tourism), and/or value added agricultural service sectors (e.g., processing).

3. The Central Role of Information in Building Bridges across the Dimensions of Food Security

When thinking about what kinds of intervention can have the highest impact and how best to scale them up, a key resource for strengthening all the food security dimensions is access to and the ability to use relevant information on the part of different actors. This in turn requires both human capacity to identify and package information and organizational capacity to disseminate information to users. While development practitioners often see the answer as obvious – more extension – the multi-dimensional nature of food security, and the need for gender specificity, presents real challenges in terms of content, delivery and coordination, as illustrated by the following:

- For sustained increases in food *availability*, for example, strengthening the agricultural research system, especially the human resource base and incentive structure, will be critical for Mali to be able to maintain crop and livestock productivity gains in the face of pressure on the natural resource base and climate change (see Foltz, 2010 for a more detailed discussion);
- To strengthen the *access* dimension of food security more emphasis may be needed on developing and disseminating information with and for farmer associations, agro-processors and traders to improve efficiency in marketing systems (including storage);
- To strengthen the *utilization* dimension of food security, FTF resources may need to help the public sector and civil society strengthen their capacity to package and deliver information for women, both as farmers/farm business operators and as those directly engaged in child bearing and child feeding;
- To strengthen the stability dimension, FTF resources may need to invest in improved information for improved coordination in private and public grain stock management.

Thus for each dimension there is a need for capacity to identify the set of information needed by different types of actor, to identify the best way to organize the packaging and dissemination of that information, and the monitoring systems and incentive structures to promote accountability.

If the centrality of information to resolving food insecurity and poverty is accepted then this raises the question of how best to support Mali's extension services. To what extent should nutrition be incorporated into agriculture *and* health extension versus coordination between agriculture and health extension services with complementary content? Achieving consensus on this issue in turn has implications for the number and training of women agricultural extension agents (almost negligible as a proportion in agricultural extension at present). As the government rapidly recruits new (but inexperienced) agents to reinforce depleted extension cadres (one hundred new agents per year over the last two years) to what extent are there economies of scope in the training of extension agents by drawing on PVO capacities? To what extent should extension services for small businesses (value added processing) and farmer associations be contracted privately even if partially paid for by government? Could a model be envisioned, perhaps through service centers, that links farmers and traders not only to technical information but also to market information and the institutional support services (e.g., help with preparing a business plan, obtaining credit, etc)?

Changes in the kinds of information provided and information delivery systems to address 21st century food security issues will require upgrading Mali's agricultural education system and building stronger linkages between research, extension and teaching. Government will also need to be able to draw on expanded capacity for policy and investment analysis on an ongoing basis, especially for complex questions such as land tenure that are important to encourage private investment.

In addition to identifying the types of information needed by different actors in the food system, and different individuals within a family, there is the question of who should be responsible for what part of the information value chain. For example (and simplifying for purposes of illustration), what should be the role of central government and what should be the role of local government in providing information and services related to clean water and sanitation? Tefft et al (2003) demonstrate that local government has a critical role to play in ensuring the mobilization, organization and delivery of the set of public services necessary to improve nutritional outcomes. But local governments, in turn, will need to be empowered to raise and administer local taxes to be able to carry out their functions. Local government fiscal administration is the type of necessary information set that may not be immediately be perceived as crucial to improved utilization of nutrients by children.

The recognition that information delivery is central, multi-dimensional in content, diverse in type of actor, and requiring organizational capacity building at different levels, requires strategic focus in order to both ensure and be able to monitor and evaluate impacts. Partial approaches risk failure due to missing components and/or difficulties of attributing results to investments.

4. Specific challenges and issues to be addressed in designing a successful investment program

4.1 Graduating from fertilizer subsidies: finding a balance between short-run and long-run increases in food availability

In the short run, increased availability of cereal production through fertilizer subsidies facilitates lower financial unit costs of production which in turn make cereals more accessible to low-income urban households. At the same time the Malian government is very conscious of the fiscal implications of fertilizer and related input subsidies, and the need to ensure that increases in availability are sustainable in the long term. To focus additional resources on the

access and utilization dimensions of food security for the poorest segments of rural society it will be important to identify and transition to more efficient ways of increasing staple food availability than depending on large-scale fertilizer subsidies.

Although the Rice Initiative and accompanying fertilizer subsidy may represent a well-intended response to what was looking like a potential crisis in 2008, there is a need for the GOM and its partners to carefully evaluate the program both in terms of implementation procedures and in terms of the benefits and costs of the program relative to other options for improving agricultural productivity and incomes. Among the alternative investments that might be beneficial as complements to or in lieu of the fertilizer subsidy, we note:

- Research on fertilizer formula/doses and soil quality in the Office du Niger where yields continue to decline despite relatively high levels of fertilizer use;
- Research and extension to ensure that fertilizer is used as efficiently as possible in rainfed zones, many of which are experiencing lower rainfall and higher temperatures than previously (e.g., micro-dosing and SWC methods that enhance fertilizer response);
- Incentives to stimulate the growth of viable networks of rural fertilizer distributors and retailers by
 - building private sector business capacity through training and access to credit (currently the approach being implemented by CNFA/AGRA) or
 - building capacity of rural cooperatives to hire appropriate staff and build their own input supply networks (an approach under consideration by Syngenta Foundation and one tested by IFDC's MIR project with FasoJigi in Segou);and
- Experimentation with alternative fertilizer procurement procedures in an effort to phase out the large, complex, and costly tendering processes currently used in the cotton sector and replace them with lower-cost options that will be easily adapted to the anticipated division of the CMDT into four local monopolies.

4.2 Heterogeneity in smallholder farming in Mali

Most development practitioners recognize that a “one-size-fits-all” approach to smallholder development is dangerous. But the diversity in smallholder farming circumstances in Mali, not only in terms of agro-ecological factors but even among households in the same zone, is truly challenging. Table 1 illustrates this by

Table 1 Cereal Production and Marketing Profiles by Agro-ecological zone and Land Endowment**Table 1a Cereal Production and Marketing Profiles Low Potential Rainfed Cereal (Tominian)**

Land Area Quartile	Mean Cultivated Area (ha)	Mean HH Size	Cereal Production per capita (kg)	% HHs buying grain	% HHs selling grain	% households net sellers	Mean HH sales per capita (kg)	Mean HH purchases per capita (kg)
1	11.5	17	281	28.6	14.3	14.3	53	19
2	6.7	14	190	54.1	18.9	13.5	26	22
3	4.4	10	229	40.0	25.0	20.0	21	28
4	2.4	10	128	60.4	14.6	12.5	23	31
Mean (n=139)	5.0	12	189	49.6	18.7	15.1	25	27

Table 1b Cereal Production and Marketing Profiles Medium Potential Rainfed Cotton-Cereal (Koutiala)

Land Area Quartile	Mean Cultivated Area (ha)	Mean HH Size	Cereal Production per capita (kg)	% HHs buying grain	% HHs selling grain	% HHs net sellers	Mean HH sales per capita (kg)	Mean HH purchases per capita (kg)
1	13.6	20	417	23.5	63.2	60.3	58	14
2	7.0	12	375	40.9	68.2	63.6	58	18
3	4.7	12	308	29.2	50.0	45.8	23	21
4	1.8	8	260	45.5	54.6	45.5	42	73
Mean (=148)	9.2	15	374	31.3	61.9	59.0	52	23

Table 1c Cereal Production and Marketing Profiles High Potential Irrigated Rice (Macina)

Land Area Quartile	Mean Cultivated Area (ha)	Mean HH Size	Cereal Production per capita (kg)	% HHs buying grain	% HHs selling grain	% HHs net sellers	Mean HH sales per capita (kg)	Mean HH purchases per capita (kg)
1	13.7	20	1334	61.5	84.6	76.9	360	41
2	7.1	16	1077	53.6	92.9	92.9	366	41
3	4.7	14	1078	60.5	88.4	88.4	350	41
4	1.9	10	710	76.6	89.4	85.1	231	63
Mean (n=144)	5.9	14	1004	64.6	87.5	86.1	315	50

Source: preliminary results IER-MSU study of cereal production and marketing patterns 2008/9 (HH = household)

comparing cereal production, sales, purchases and net position for three different agro-ecological zones of Mali. Within each zone households are ranked in terms of land area cultivated and then divided into four equal groups. Some patterns that emerge are predictable but others less so. A predictable pattern, for example, is that cereal production is highest in the irrigated rice zone (Table 1c) and lowest in the low potential rainfed zone (Table 1 a). The proportion of households that are net sellers (volume of grain sold greater than volume purchased) follows the same pattern.² But among households within the same zone there are very wide differences in cereal production on a per capita basis, which may explain in part why malnutrition indices can be high even in high potential zones.

In section 2 we raised the question of how to prioritize investments spatially, thematically and in terms of subsectors. What are the implications of the cereal production and marketing patterns in Table 1 for these choices? Should resources be focused on areas where food availability per capita is lowest like Tominian (Table 1a) but where agro-ecological potential is also low? Or should the focus be on sustaining the productive capacity of a higher potential zone but vulnerable to natural resource degradation like Koutiala (Table 1 b)? Or should the focus be on land tenure, crop diversification and outmigration in the over-populated irrigated areas (Table 1c)? Or should the focus be on the areas of current rapid settlement in the southern border zones to provide infrastructure and land tenure programs to ensure sustainability and harness productivity before land degradation and social conflict becomes established? One option might be to focus on increasing marketed supply in the high potential systems to keep the real unit cost of additional production as low as possible, while in low potential areas seeking to diversify income opportunities (farming tourists rather than soil) and stabilizing production through soil and water conservation investments.

Regardless of any geographical targeting, farmers in the same agro-ecological zone but with different resource endowments will need different pathways out of poverty and food insecurity.

For USAID to see significant and measureable changes in malnutrition indicators from its investment in Mali's CAADP geographical targeting may be desirable to be able to address all dimensions of the problem and ensure effective measurement of results.

References

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² Note that being a net seller does not indicate food security even in regard to the dimensions of availability and access. Sales often occur shortly after harvest when prices are low, whereas purchases often occur in the hungry season when prices are high.